



800 Boylston Street, SUM SW380, Boston, MA 02199

**Via Hand Delivery**

March 1, 2004

Mary L. Cottrell, Secretary  
Department of Telecommunications and Energy  
One South Station  
Boston, MA 02110

RE: Commonwealth Electric Company d/b/a/ NSTAR Electric, D.T.E. 04-19

Dear Ms. Cottrell:

Enclosed please find the Annual Service Quality Report (the "SQ Report") for Commonwealth Electric Company d/b/a/ NSTAR Electric Company ("ComElectric" or the "Company"). The SQ Report sets forth the Company's performance results for the year ending December 31, 2003, under the service quality plan (the "SQ Plan") that was approved for the Company by the Department of Telecommunications and Energy (the "Department") on December 5, 2001.

In 2003, the Company met or exceeded all of the established performance benchmarks, and therefore, ended the year in a net offset position. NSTAR Electric looks forward to continued success in 2004.

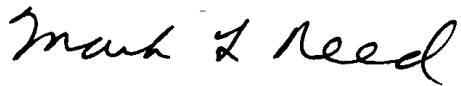
Should you have any questions or need additional information, please do not hesitate to contact me. Any communications should also be directed to:

Cheryl M. Kimball  
John K. Habib  
Keegan, Werlin & Pabian, LLP  
265 Franklin Street  
Boston, MA 02110  
TEL: (617) 951-1400

Letter to Mary Cottrell  
D.T.E. 04-19  
Commonwealth Electric Company  
March 1, 2004  
Page 2 of 2

Thank you for your time and attention to this matter.

Sincerely,

A handwritten signature in black ink that reads "Mark Z. Reed". The signature is written in a cursive style with a large, stylized 'M' and 'R'.

Mark Reed, Esq.  
Director of Government Affairs  
(781) 441-3776

Enclosures

cc: Caroline Bulger, Esq.  
Jody Stiefel, Esq.  
Joseph Rogers, Assistant Attorney General

# **Commonwealth Electric Company**

## **Annual Service Quality Report**

### **SECTION ONE**

Year Ending December 31, 2003

**DTE FORM - B**



## FORM B (Electric Companies)

### Commonwealth Electric Company

PENALTY PROVISIONS	Years in Database	Mean and Benchmark	Performance in 2003	Comments
Telephone Answering Factor (%)	6	67.27% (+/- 7.42%)	80.28%	Telephone statistic based on Calls Handled within 30 Seconds.
Emergency Answering (%)	1	NA	83.19%	Tracking emergency calls started in 2002.
Non-Emergency Answering (%)	1	NA	79.64%	Tracking non-emergency calls started in 2002.
Service Appointments Kept (%)	1	NA	98.26%	Tracking service appointments started in 2002.
Meter Reads (%)	6	98.78% (+/- 0.94%)	98.42%	
Consumer Division Cases (Cases/1000 customers)	10	1.116 (+/- 0.227)	0.593	
Bill Adjustments (\$/1000 customers)	10	\$37.27 (+/- \$40.43)	\$16.15	
SAIFI	5	1.323 (+/- 0.225)	1.202	
SAIDI	5	129.85 (+/- 28.09)	92.52	
Lost Time Accident Rate (# of acc/200,000 employee hours worked)	10	2.63 (+/- 0.80)	0.50	

## FORM B (Electric Companies)

### Commonwealth Electric Company

ADDITIONAL REPORTING	Years in Database	Mean and Benchmark	Performance in 2003	Comments
Staffing Levels	7	Union 477 Management 250	Union 2232 Management 855	
Restricted Work Day Rate (# of acc/200,000 employee hours worked)	10	2.44	2.47	
Property Damage > \$50K (#)	2	NA	0	
Line Loss	10	5.5%	6.2%	Performance in 2003 is estimated pending filing of FERC FORM 1
Capital Expenditures (# of projects and total \$)	10	\$28,373,190	111 \$47,139,002	
Spare Component & Inventory Policy	NA	NA	NA	
Customer Surveys (scale 1-7):				
Random (Overall Customer Satisfaction Survey)	2	NA	82.7%	
Callers (Post-Transaction Survey)	2	NA	85.7%	
Customer Service Guarantees (#; total \$)				
# of Payouts	2	NA	2	
\$ of Payouts	2	NA	\$50	

# **Commonwealth Electric Company**

## **Annual Service Quality Plan Performance Report**

### **SECTION TWO**

Year Ending December 31, 2003

Historical Performance Data



## **SECTION 2**

### **Commonwealth Electric Company Performance Review for Year Ending December 31, 2003**

#### **I. Introduction**

On December 5, 2001, the Department of Telecommunications and Energy (the “Department”) approved a Service Quality Plan (the “SQ Plan”) for Commonwealth Electric Company d/b/a/ NSTAR Electric (“Commonwealth,” or the “Company”). In accordance with the terms of the SQ Plan, Commonwealth filed its first annual service-quality report on March 1, 2002. That filing established the benchmarks (using data through 2001) against which performance in the 2002 calendar-year period would be measured. In this section (Section 2) of the filing, the Company reviews: (1) the historical data underlying those benchmarks; (2) the performance results for 2003; and (3) the comparison of 2003 performance results to the established benchmarks. Items (2) and (3) are provided in this section at Schedule 1, at page 1. Item (1) is provided in Schedule 1, at page 2.

In Section 3 of this filing, the Company has provided documentation for the reliability and safety requirements that are subject to the reporting requirements of the SQ Plan.

Also in Section 3, the Company has provided updated historical performance data through December 31, 2003. Based on this data, the Company has calculated the benchmarks that will be applied to evaluate 2004 performance data in next year’s filing. In that regard, the Company has recalculated benchmarks for three measures for which there was less than the requisite level of data as of December 31, 2002. For these three measures, the benchmarks applied next year are calculated using data through December 31, 2003. As provided by the SQ Plan, benchmarks that were calculated using the requisite level of data as of December 31, 2002, are fixed for the period of the SQ Plan. The fixed and updated benchmarks for 2004 are set forth in Appendix 12.

Specifically Section 3 contains the following:

- Appendix 1: Customer Surveys
- Appendix 2: Customer Average Interruption Duration Index
- Appendix 3: Restricted Work Day Data
- Appendix 4: Annual Line Loss Data
- Appendix 5: Damage to Company Property In Excess of \$50,000
- Appendix 6: Excludable Major Events
- Appendix 7: Tree Trimming Policy

- Appendix 8: Capital Expenditures
- Appendix 9: Spare Component and Acquisition Inventory Policy
- Appendix 10: Poor Performing Circuits
- Appendix 11: Staffing Levels
- Appendix 12: Updated Historical Data and Calculation of Benchmarks for 2004 Performance

## **II. Performance Review for Year Ending December 31, 2003**

### **A. Customer Service and Billing Performance Measures**

#### **1. Telephone Service Factor**

For the Telephone Service Factor, the Company is required to track and report data on the percentage of telephone calls from customers that are handled within a 30-second time interval, including both emergency and non-emergency calls.<sup>1</sup> Commonwealth began collecting data based on the percentage of calls answered within 30 seconds in 1997. Based on available data through 2002, the Company's benchmark for this measure is 67.27 percent. In 2003, the Company handled 80.28 percent of calls within 30 seconds, which generated an offset for the Company.

Because the 2003 performance benchmark calculated for the Telephone Service Factor was based on less than 10 years of historical data, the Company has updated this benchmark to include 2003 performance. As shown in Appendix 12, the benchmark against which 2004 performance will be measured has increased from 67.27 percent to 69.13 percent.

#### **2. Service Appointments Met as Scheduled**

As of January 1, 2002, the Company instituted a system to compile statistics on the percentage of service appointments met by Company personnel, excluding appointments missed by the customer. A "service appointment" is defined as a mutually agreed upon arrangement for service between the customer and the Company where the arrangement specifies the date for the Company's personnel to perform a service activity that requires the presence of the customer at the time of the service. The Company will continue to update the data annually in accordance with the Department's guidelines, and will establish the benchmark when three years of data become available. As detailed in Appendix 12, the Company met 98.26 percent of its service appointments as scheduled in 2003.

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<sup>1</sup> In accordance with the Department's directives, effective January 1, 2002, the Company began to measure the percent of calls handled within a 20-second time interval. For this performance measure, the Company handled 76.72 percent of calls within 20 seconds.



### 3. On-Cycle Meter Readings

Commonwealth is required to report on the percentage of meters that are actually read by the Company in accordance with the meter-reading cycle. Based on available data through 2002, the Company's benchmark for this measure is 98.78 percent. In 2003, the Company achieved 98.42 percent of on-cycle meter reads, which is within one standard deviation of the benchmark.

Because the 2003 performance benchmark calculated for On-Cycle Meter Readings was based on less than 10 years of historical data, the Company has updated this benchmark to include 2003 performance. As shown in Appendix 12, the benchmark against which 2004 performance will be measured has been revised from 98.78 percent to 98.73 percent.

#### B. Customer Satisfaction Performance Measures

##### 1. Consumer Division Cases

The Company is required to measure its performance in relation to the number of customer-complaint cases filed with the Department's Consumer Division. Based on the 10 years of data provided to the Company, the performance benchmark shown on Schedule 1 is 1.116, which will remain fixed for the duration of the service-quality plan. In 2003, the number of Consumer Division cases was 0.593, which generated an offset for the Company.

##### 2. Billing Adjustments

The Company is required to measure its performance in relation to the amount of revenue adjustments that result from the Department's intervention in a billing dispute with a residential customer. This is based on data that is compiled and reported by the Department and then provided to the Company. Based on the 10 years of data provided to the Company, the performance benchmark shown on Schedule 1 is 37.27, which will remain fixed for the duration of the SQ Plan. In 2003, the number of Billing Adjustments was 16.15, which is within one standard deviation of the benchmark.<sup>2</sup>

#### C. Safety and Reliability Performance Measures

##### 1. System Average Interruption Duration Index ("SAIDI") and System Average Interruption Frequency ("SAIFI")

The SQ Plan requires the Company to track and report SAIDI/SAIFI statistics and to base the benchmark for this measure on the most recent five years of data. Under the

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<sup>2</sup> In applying the Department's penalty/offset formulae to the Company's performance data, the Company has determined that, in some instances, the maximum amount of offsets cannot be achieved. For example, the Company's 2003 SQ Report demonstrates that its benchmark for billing adjustments is set at 37.27. However, because of a wide deadband of 40.43, a maximum offset may result in 2005 for 2004 performance only if the Company's billing adjustments are calculated as (-43.59), which is impossible.

SQ Plan, SAIDI and SAIFI are calculated with the exclusion of “Excludable Major Events.” One criterion for an Excludable Major Event is that it be an unplanned interruption of service to 15 percent or more of the Company’s customers in an “operating area.” The Department has defined “operating area” to mean the Company’s entire service territory. Schedule 1 shows the SAIDI/SAIFI performance benchmarks that were fixed for the duration of the SQ Plan based on the most recent five-years of historical data (1997-2001), excluding major events in the Company’s service territory. As shown in Schedule 1, the SAIDI benchmark is 129.85 and the SAIFI benchmark is 1.323. In 2003, the Company’s performance statistics were 92.52 for SAIDI and 1.202, for SAIFI, which generated offset for SAIDI and performance within one standard deviation of the benchmark for SAIFI.

## 2. Lost-Work Time Accident Rate

The SQ Plan requires the Company to report on the Incidence Rate of Lost Work Time Injuries and Illness per 200,000 Employee Hours, as defined by the U.S. Department of Labor Bureau of Labor Statistics. This data is compiled and reported annually to the U.S. Department of Labor Bureau of Labor Statistics and the Company has 10 years of available data for this measure. Based on that data, the performance benchmark for this measure is 2.63. In 2003, the number of Lost Work Time Accidents was 0.50, which generated an offset for the Company.<sup>3</sup>

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<sup>3</sup> On January 1, 2002, the U.S. Department of Labor, Occupational Safety and Health Administration (“OSHA”), revised the regulations concerning the recording and reporting requirements for occupational injuries and illnesses. See 29 CFR § 1904.7. Specifically, the revised regulations require the Company to include the number of calendar days that an employee was unable to work as a result of injury, regardless of whether or not the employee was scheduled to work on those days (29 CFR § 1904.7(iv)). The Company’s performance benchmark for Lost-Work Time Accident Rate, which is based on ten years of historical information, excludes weekends, holidays or other days that an employee would not normally have reported to work. Since the effective date of OSHA’s regulations, the Company has maintained a log of occupational injuries or illnesses consistent with the new regulation going forward. However, for purposes of the annual service-quality report (the “SQ Report”), the Company has tracked and reported its performance consistent with the prior version of the regulation so that the performance data will match the historical data composing the performance benchmark. The Department approved the Company’s 2002 SQ Report using this methodology. See 2002 Service Quality Reports for Electric Distribution and Local Gas Distribution Companies, D.T.E. 03-10 through D.T.E. 03-23 (2003).

COMMONWEALTH ELECTRIC COMPANY SERVICE QUALITY STANDARDS											
Measures	Required Years	Actual Years	Historical		Penalty/ Offset		Max (3)	Results - 2003			Penalty / (Offset)
	History	Available	Average(1)	Std Dev	Weight		Penalty	Observ.	Variance	No. of Std Devs	
<u>Customer Service and Billing</u>											
% Calls Answered (2)	10	6	67.27%	7.42%	12.5%	\$	429,561	80.28%	13.01%	1.7534	\$ (330,162)
% Services Appointments Met	10	1	NA	NA	12.5%		429,561	98.26%	NA	NA	NA
% On-Cycle Meter Reads	10	6	98.78%	0.94%	10.0%		343,649	98.42%	-0.36%	-0.3830	0
<u>Safety and Reliability</u>											
Lost Work Day Accidents	10	10	2.63	0.80	10.0%		343,649	0.50	-2.13	-2.6625	(343,649)
SAIDI - 5 yrs	5	5	129.85	28.09	22.5%		773,210	92.52	-37.33	-1.3289	(341,368)
SAIFI - 5 yrs	5	5	1.323	0.225	22.5%		773,210	1.202	-0.12	-0.5378	0
<u>Consumer Division Statistics</u>											
Consumer Division Cases	10	10	1.116	0.227	5.0%		171,825	0.593	-0.523	-2.3040	(171,825)
Billing Adjustments	10	10	37.27	40.43	5.0%		171,825	16.15	-21.12	-0.5224	0
<b>Total</b>					<b>100.0%</b>	<b>\$</b>	<b>3,436,490</b>			<b>\$</b>	<b>(1,187,003)</b>
<u>Notes</u>											
(1) Telephone statistic based on Calls Handled within 30 Seconds; includes calls abandoned after threshold.											
(2) Max penalty is incurred at 2 sd from average											
(3) Two percent of total T&D revenue in 2003.											
							\$3,436,540				
Less: Service Guarantee Payout							50				
Maximum Penalty / (Offset)							<u>\$3,436,490</u>				

COMMONWEALTH ELECTRIC COMPANY

Measures	History (1)															
	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1988	Sample	Average	Std Dev
<u>Customer Service and Billing</u>																
% Calls Answered (1)	80.24%	60.26%	71.16%	61.55%	64.26%	66.17%								6	67.27%	7.42%
% Services Appointments Met	100.00%													1	NA	NA
% On-Cycle Meter Reads	99.38%	98.99%	99.37%	99.08%	98.95%	96.90%								6	98.78%	0.94%
<u>Safety and Reliability</u>																
Lost Work Day Accidents		1.54	2.49	2.89	1.43	2.35	3.24	2.81	3.84	3.58	2.17			10	2.63	0.80
SAIDI - 5 yrs		99.52	147.23	154.32	98.91	149.28								5	129.85	28.09
SAIFI - 5 yrs		1.207	1.510	1.501	0.985	1.413								5	1.323	0.225
<u>Consumer Division Statistics</u>																
Consumer Division Cases		0.944	0.792	1.003	1.050	0.972	1.019	1.191	1.240	1.450	1.501			10	1.116	0.227
Billing Adjustments		8.00	0.11	11.78	37.87	93.94	14.78	18.91	27.25	35.21	124.81			10	37.27	40.43

Notes

(1) 12 Month period January to December.

# **Commonwealth Electric Company**

## **Annual Service Quality Report**

### **SECTION THREE**

Year Ending December 31, 2003

Back-up Data and Supporting Schedules



## **SECTION 3**

### **I. Non-Penalty Related Service Quality Information**

Section VIII of the SQ Plan sets forth a number of non-penalty related reporting requirements for the Company's annual service-quality filings. These reports are as follows:

#### **Appendix 1: Customer Surveys**

Pursuant to section III.C of the SQ Plan, Commonwealth conducted an annual survey of (1) overall customer satisfaction as indicated by a statistically representative sample of residential customers, and (2) post-transaction customer satisfaction as indicated by a sample of randomly selected customers who have contacted the Company's customer-service department during the year. The surveys were conducted by Research International, which is an independent research firm with significant experience in conducting customer satisfaction surveys. The results of these surveys are presented in Appendix 1.

#### **Appendix 2: Customer Average Interruption Duration Index ("CAIDI")**

The CAIDI performance statistics for the ten most recent years ending December 31, 2003 are provided in Appendix 2. Historically, the Company's CAIDI performance statistics have been calculated on the same basis as SAIDI and SAIFI. As a result, the CAIDI performance statistics for Commonwealth are based on a calculation that excludes major events that occur on a service-area basis (rather than a company-wide basis), as discussed above in relation to the SAIDI/SAIFI benchmarks.

In addition, it should be noted that, under the provisions of the SQ Plan, when customers lose power as a result of the process of restoring, the duration of these additional outages is included in SAIDI, but the additional number of interruptions is excluded from the calculation of SAIFI. See, Section V(I). Further, under Section I(B), CAIDI is calculated as SAIDI divided by SAIFI. A consequence of this construction is that, in calculating CAIDI, the numerator and the denominator are not representing the same outages, i.e., there are outages that are included in the numerator, but not in the denominator. To be consistent with industry practice, the numerator and the denominator of the CAIDI calculation should represent the same outages.<sup>1</sup>

#### **Appendix 3: Restricted Work Day Rate**

The Restricted Work Day Rate is the Incidence Rate of Restricted Work Cases Per 200,000 Employee Hours, as defined by the U.S. Department of Labor, Bureau of Labor Statistics. This information is provided for the most recent ten years in Appendix 3.

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<sup>1</sup> The Company's CAIDI statistic for 2003 would be 65.16 with the outages associated with power restoration excluded from SAIDI.

#### **Appendix 4: Electric Distribution Line Loss**

Pursuant to section VIII.A of the SQ Plan, the Company is required to report electric distribution line loss on an annual basis. For 2003, this information is provided in Appendix 4. The annual line loss value for electric companies is the net result of reconciling the total sources of power to the amount of electricity supplied to customers, plus company use. The derivation of the calculation is set forth on page 401a of the Company's annual FERC Form 1.

#### **Appendix 5: Damage to Company Property In Excess of \$50,000**

Pursuant to section VIII.A of the SQ Plan, the Company is required to provide an annual report of property-damage incidents involving property damage to Company-owned facilities exceeding \$50,000 per incident. For 2003, this information is provided in Appendix 5.

#### **Appendix 6: Excludable Major Events**

Pursuant to section VIII.D of the SQ Plan, the Company is required to identify and report on an annual basis the outages that are considered Excludable Major Events in the calculation of SAIDI/SAIFI statistics. Information for 2003 is provided in Appendix 6.

#### **Appendix 7: Tree Trimming Policy**

The Company's Tree-Trimming Policy is provided as Appendix 7.

#### **Appendix 8: Capital Expenditures**

The Company's data on capital expenditures for the ten most recent years (1994 through 2003) is provided in Appendix 8.

#### **Appendix 9: Spare Component and Acquisition Inventory Policy**

Pursuant to section VIII.F of the SQ Plan, Commonwealth is required to report on an annual basis its policy for identifying, acquiring, and stocking critical spare components for its distribution and transmission system. The Spare Component and Acquisition Inventory Policy is provided as Appendix 9.

#### **Appendix 10: Poor Performing Circuits**

Pursuant to section VIII.G of the SQ Plan, Commonwealth is required to identify and report on an annual basis its poor performing circuits. For 2003, the Company's information is provided as Appendix 10. Poor performing circuits are any distribution feeder that:

- (a) has sustained a circuit SAIDI or SAIFI value for a reporting year that is among the highest (worst) ten percent of that utility's feeders for any two consecutive reporting years; or
- (b) has sustained a circuit SAIDI or SAIFI value for a reporting year that is more than 300 percent greater than the system average of all feeders in any two consecutive reporting years.

#### **Appendix 11: Staffing Levels**

Staffing level information for the Company is provided in Appendix 11.

#### **Appendix 12: Performance Benchmarks for 2004**

In Appendix 12, the Company has updated historical data to include 2003 performance data in the calculation of benchmarks for the 2004 reporting period, where the benchmarks were not fixed for the duration of the SQ Plan.

### **II. Customer Service Guarantees**

Pursuant to section XI of the SQ Plan, Commonwealth is required to provide information as to the customer payments credited as a result of the customer-service guarantee program during the service-measurement period. As indicated in the SQ Plan, Commonwealth credits the customer's account by \$25.00 if a meter reading is inaccurate, if the Company knowingly fails to inform a customer that it will be more than 30 minutes late for a service appointment, if there is an error in the direct payment or pay-by-phone billing systems, if the Company fails to inform a customer of a scheduled service interruption, or if the Company does not respond to a billing question by the next business day. In addition, if a new residential service line is not connected by the agreed date (after all permits are received), the first month's bill is free (minimum \$25, maximum \$100). In 2003, Commonwealth remitted to customers a total of \$50.00 under its Customer-Service Guarantee program.

### **III. Conclusion**

As set forth above, this filing establishes the performance benchmarks for service-quality measures subject to the penalty mechanism based on historical data available through December 31, 2003. On March 1, 2005, Commonwealth will make its annual filing, which will compare the Company's performance in 2004 to the benchmarks established in this filing. The Company's March 2005 filing will also include documentation to satisfy all other reporting requirements set forth in the approved SQ Plan.



# **Commonwealth Electric Company**

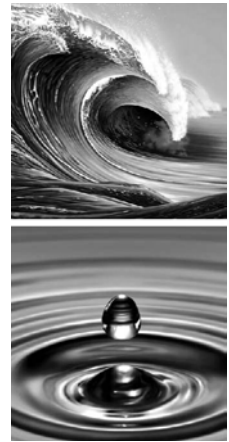
## **Customer Surveys**

Year Ending December 31, 2003



Appendix 1

# RESEARCH INTERNATIONAL



## MEMO

TO NSTAR  
FROM Research International  
DATE February 10, 2004

RE: Residential customer satisfaction metrics (former COM/Electric service area)

The following results are from a representative sample of 700 NSTAR residential customers. Of the 700 surveys, 550 were with NSTAR Electric residential customers (300 in the former Boston Edison service area, and 250 in the former COM/Electric service area) and 150 with NSTAR Gas residential customers.

Respondents were asked to evaluate their *satisfaction with the service they are receiving from NSTAR Electric* using a 7-point scale, where a rating of "7" means "very satisfied." The data from NSTAR Electric customers are weighted to reflect the true proportion of former Boston Edison customers to former COM/Electric customers. *"Don't know" responses are excluded from the analysis.*

- Eight in ten (82.7%), or 205 of 248 NSTAR Electric customers living in the former COM/Electric service area rate positively their overall satisfaction with NSTAR (5 or higher on 7-point scale).

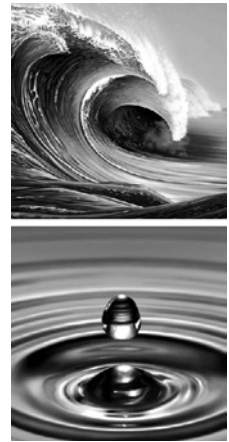
The raw numbers in terms of actual customer responses to the 7-point scale in 2003 are as follows:

Response codes	"1"	"2"	"3"	"4"	"5"	"6"	"7"	"DK"
Responses	8	6	11	18	62	49	94	2

The associated margin of error for the sample of 250 surveys is +/-6.2 percentage points at the midpoint of the 95% confidence level.

Jeff Banks  
Senior Vice President  
Research International/Cambridge  
617.661.0110  
955 Massachusetts Avenue  
Cambridge, MA 02139

# RESEARCH INTERNATIONAL



## MEMO

TO NSTAR  
FROM Research International  
DATE February 10, 2004

RE: Post-transaction residential customer satisfaction metrics (former COM/Electric service area)

The following results are from a representative sample of 900 NSTAR residential customers who recently contacted NSTAR for service. Of the 900 surveys, 699 were with NSTAR Electric residential customers (443 in the former Boston Edison service area, and 256 in the former COM/Electric service area) and 201 with NSTAR Gas residential customers.

Respondents were asked to think about the most recent time they called NSTAR and to evaluate their *overall satisfaction with the service they received from the customer service department of NSTAR* using a 7-point scale, where a rating of "7" means "very satisfied." *"Don't know" responses are excluded from the analysis.*

- More than eight in ten (85.7%), or 215 of 251 NSTAR Electric customers living in the former COM/Electric service area rate positively their overall satisfaction with NSTAR's customer service (5 or higher on 7-point scale).

The raw numbers in terms of actual customer responses to the 7-point scale in 2003 are as follows:

Response codes	"1"	"2"	"3"	"4"	"5"	"6"	"7"	"DK"
Responses	13	6	9	8	26	44	145	5

The associated margin of error for the overall sample of 256 surveys is +/-6.1 percentage points at the midpoint of the 95% confidence level.

Jeff Banks  
Senior Vice President  
Research International/Cambridge  
617.661.0110  
955 Massachusetts Avenue  
Cambridge, MA 02139

# **Commonwealth Electric Company**

## **Customer Average Interruption Duration Index**

### **CAIDI**

Year Ending December 31, 2003



Appendix 2

Commonwealth Electric Company  
SQ Plan  
Historical Data

<u>Year</u>	<u>SAIFI</u>	<u>CAIDI</u>	<u>SAIDI</u>
1994	1.881	75.38	141.77
1995	1.539	63.70	98.03
1996	2.309	86.58	199.87
1997	1.413	105.64	149.28
1998	0.985	100.46	98.91
1999	1.501	102.81	154.32
2000	1.510	97.53	147.23
2001	1.207	82.48	99.52
2002	1.002	83.22	83.43
2003	1.202	76.94	92.52

Excludes outages affecting greater than 15% of Company's service territory.

# **Commonwealth Electric Company**

## **Restricted Work Day Data**

Year Ending December 31, 2003



Appendix 3

# Injury Statistics

## Restricted Duty Cases

Commonwealth Electric and Cambridge Electric Companies

	<u>Hrs. Wkd.</u>	<u># of Cases</u>	<u>Rate</u>
1994	2,184,787	30	2.75
1995	2,133,823	28	2.62
1996	2,097,821	17	1.62
1997	1,959,178	18	1.84
1998	1,821,364	18	1.98
1999	1,520,970	19	2.50
2000	1,363,403	18	2.64
2001	1,301,082	21	3.23
2002	1,666,906	23	2.72
2003	1,576,555	19	2.47
Mean			2.44

Incident Rate = Number of Cases x 200,000/Hours Worked

# **Commonwealth Electric Company**

## **Annual Line Loss Data**

Year Ending December 31, 2003



Appendix 4



Annual Line Loss Data Commonwealth Electric Company	
1994	5.4%
1995	5.5%
1996	4.1%
1997	4.0%
1998	4.9%
1999	5.7%
2000	6.9%
2001	6.9%
2002	5.7%
2003 **	6.2%

\*\* Subject to finalization of FERC FORM1 1 and DTE Annual Report for year-end 2003.

# **Commonwealth Electric Company**

## **Damage to Company Property**

Year Ending December 31, 2003



Appendix 5

## **Commonwealth Electric Company**

### **Damage to Company Property in Excess of \$50,000**

- 1 Incident
  1. Damage due to dig up of underground electric lines: Acushnet Avenue & Depot Street, New Bedford.

# **Commonwealth Electric Company**

## **Excludable Major Event**

Year Ending December 31, 2003



Appendix 6

## 2003 Major Outage Events

### Commonwealth Electric Company

Service Area	Event / Date	Customers Affected	Customers without service at periodic intervals	Longest Customer Interruption	Crews used to restore service
Commonwealth Electric Company	Transmission Event December 1	300,639	1.4 hours – 300,639	1.4 hours	17 crews (12/01)
Framingham	Snowstorm December 5-8	82,714	<=1 hours – 40,341 <=2 hours – 14,028 <=3 hours – 17,456 <=4 hours – 3,014 <=5 hours – 3,757 <=6 hours – 1,764 <=7 hours – 1,337 <=8 hours – 16 <=9 hours – 14 <=10 hours – 622 <=11 hours – 105 <=12 hours – 10 <=13 hours – 0 <=14 hours – 85 > 14 hours – 165	38.2 hours	28 crews (12/05) 104 crews (12/06) 253 crews (12/07) 155 crews (12/08)

# **Commonwealth Electric Company**

## **Tree Trimming Policy**

Year Ending December 31, 2003



Appendix 7

# **NSTAR DISTRIBUTION TREE PRUNING POLICY**

## **General**

The Distribution Pruning Policy is intended to provide pruning contractors with guidelines for performing work acceptable to the NSTAR Company, including proper pruning techniques, work progress reporting and time reporting.

The Policy also documents general management procedures for dealing with the various aspects of Pruning Program Control.

The Policy pertains to both maintenance pruning, which is done on an ongoing cyclic basis of approximately three to six years and to “new work” pruning.

Note: Company representative or delegate as referred to in this policy shall be understood to mean those individuals normally assigned to monitor tree crew activities in a given district or area within a district.

## **Guidelines For Tree Pruning And Removal**

- 1) Provisions of the latest revisions to ANSI A-300 American National Standard for Tree Care Operations – Tree Shrub and Other Woody Plant Maintenance – Standard Practices shall be followed.
- 2) The desired amount of clearance necessary for conductors and electrical equipment should be such that high winds, rain, heavy snow, ice or a combination of any of them will not cause limbs or trees to come in contact with wires or other equipment. Effort should be made to remove any dead trees or limbs that in the event of their falling could contact conductors.
  - a) Clearance Guidelines – Refer to Exhibit 1.
  - b) Road Screens – Where existing, shall be topped depending on the ground clearance of the conductors above, using the drop crotch or “Natural Pruning” technique as shown in Exhibit 1.
- 3) Generally Accepted Scientific Arboricultural Principles as Applied to line Clearance Work – For safe and healthy trees, the following recommendations are suggested:
  - a) Branches growing into a conductor should be removed by cutting back at a lateral or main side branch, rather than stub cutting. (“Natural Pruning”)
  - b) All cuts shall be properly made, using undercutting to avoid damage by loosening or stripping of bark; the so-called “Branch Bark Collar” shall be left intact but no stubs shall remain. Cuts shall be smooth to allow for callus tissue to form and to retard decay. Properly made saw cuts at the laterals, where the lateral is at least one third (1/3) the size of the branch or leader removed, reduce the number and vigor of re-growth sprouts through the trees natural growth mechanisms. (“Natural Pruning”).

- c) In general, tree paint is not required. In specific instances state or municipal authorities may require tree paint. In such instances growth retardant paint should be used. Asphalt based tree paints shall not be used as they promote growth of certain rot fungi.
- d) Remove raised sucker clusters at parent limb and remove undesirable limbs that have been stubbed off and have formed accumulated sucker clusters.
- e) Directional prune so that growth will be away from wires.
- f) Lighten overhanging (within 10' of trimmed zone) or adjacent leaders and branches and shorten evergreens overhanging conductors to prevent limbs touching or breaking off and falling on lines in severe storms.
- g) Remove leaders and limbs that are a hazard to lines due to death, decay, weak configuration and split or weak crotches.
- h) Only appropriate tree tools in good working condition shall be used.
- i) Climbing irons shall not be used in any tree unless the tree is to be removed.
- j) All severed limbs and branches (hangers) shall be removed from trees after pruning.
- k) Guidelines for tree removal.
  - i) Unless previous arrangement has been made with the Company Representative, trees that are a hazard to the lines shall be removed; i.e. any tree which by the nature of it's health, size or condition endangers the line.
  - ii) Defective or diseased trees shall be removed whenever possible.
  - iii) Fast growing and weed trees shall be removed as undesirable species, whenever possible.
  - iv) Trees shall be felled away from conductors.
  - v) In areas where damage might be caused to conductors or property, trees shall be stripped of all limbs with the trunk removed in sections, as necessary.
  - vi) All brush shall be removed daily from public thoroughfares and other improved places unless otherwise arranged with the Company Representative.
  - vii) All stumps shall be cut flush and parallel to the ground. Tree stumps shall not exceed a maximum height of three (3) inches. All brush shall be cut flush and parallel to the ground.
  - viii) Wood and brush (cribbing) shall be used as a cushion to protect from potential damage due to felling trees or heavy limb sections. The probability of a bouncing effect is normally increased when using cribbing and should be allowed for.
- 4) Prioritization of Pruning – Distribution pruning should be performed on a circuit basis whenever possible. Always start pruning from the substation out, as this area is of greatest importance due to the large number of customers affected by outages caused in this area.
- 5) Three-phase lines should have greater clearance and attention than single-phase spur lines. Pruning is performed to protect the largest number of customers from an interruption. Three-phase interruptions will affect more customers.



## 6) Safety – Good Relations – Clean-up

- a) The contractor will take all safety and protective precautions and with respect thereto will strictly enforce all applicable regulations of Municipal, State and Federal Laws, the various insurers and the Company. These shall include OSHA and ANSI Z133.1.
- b) A neat appearance, pleasant approach and a clear explanation as to what you mean or want when contacting people. In any instance where there is a misunderstanding or a possible cause for trouble with a customer or municipal official, notify the Company Representative, so that proper action can be taken. When a property owner or municipal official absolutely will not allow proper pruning refer the situation to the Company Representative in writing. If pruning in a given area is under dispute – move to another area.
  - i) Utility Company Relations – Tree crew to contact the Company every day and report work location; details of who to report to, when and where will be specified by the local Company Representative.
  - ii) Outage – Whenever there is a question of a possible accidental outage of power caused by a tree crew, the Company is to be notified immediately.
  - iii) Municipal Regulations – Notify the proper municipal official (Tree Warden, etc.) as required and let them know what location you are working in. Get permission to do tree work on municipal trees from the proper authority before doing the work.
  - iv) State Regulations – When doing tree work on a State Highway have a copy of the State Tree Pruning Permit with Permit Number. All tree work on State Highways must be approved and supervised by the proper State Official. State regulations on barricades and warning signs must be observed.

Dispose of all debris properly and leave the work area in a neat and clean condition. Unless otherwise specified, wood shall be left for property owner. All trucks will have leaf blowers to clear roadway areas.

## **Contractor Responsibility**

“The relationship of the Company and the Contractor is acknowledged to be that of owner and independent contractor. The means and methods employed for performing the details of pruning shall be the responsibility of the Contractor, subject to the suggestions and approvals of the Company’s designated representative.”

- 1. Compliance with Laws and Regulations – The Contractor shall comply with all applicable laws and regulations and all work and materials are to comply in every respect with all applicable codes, laws and regulations. All necessary permits, licenses, etc., for the Work unless obtained by the Company are to be obtained and paid for by the Contractor, the Company to reimburse the Contractor for the cost thereof unless the Work is being done on a fixed fee basis.

2. Instructions to Contractor – Pruning work includes the furnishing of all supervision, labor, equipment, tools and services necessary to trim trees in designated areas and in a manner acceptable to local or state authorities and Company Representative, per the Pruning Contract/Purchase Order. The Contractor will report daily in writing to the Company Representative any damaged Company equipment (insulators, crossarms, etc.) encountered in the course of his work.
3. All crews are required to attend a yearly review of NSTAR Pruning Policy at the expense of the contractor

### **Other Related Items**

1. Privately Owned Facilities – The Company in general will not authorize pruning of privately owned facilities.
2. Contractor List – Owners of private electrical facilities may occasionally ask for recommendations concerning private contractors for line maintenance or pruning work. The Company position is not to make recommendation of any specific contractor for reasons of liability.
3. Refusal to Allow Pruning – When the pruning contractor reports a refusal to allow pruning, the Company Representative shall contact the involved party in an effort to secure the proper pruning. If no agreement can be reached the refusing party shall be contacted via registered mail (Return Receipt Requested)

The letter will relate our reasons for pruning i.e. protection of our facilities, reliability of service, protection of the public (tree climbers) and serve as documentation of our attempt to secure adequate pruning. Hopefully this letter will prompt some to reconsider their refusal. If not, we will have documentation of our intent and attempt to secure adequate pruning.

4. Documentation of Tree Removal – When, due to diseased or dead state, ornamental or large shade trees are by necessity removed, documentation in the form of detailed notes and/or photographs should be kept. This documentation may be valuable in the event a customer later brings a claim against the Company for the value of a tree claiming “wrongful removal”.

## **Methods of Pruning**

There are many methods of pruning trees for line clearance, but not all methods are attractive or advantageous to the tree, nor are all methods effective for long-term line clearance. The basic pruning methods are pollarding, sharing or rounding over and natural pruning (Fig. 3).

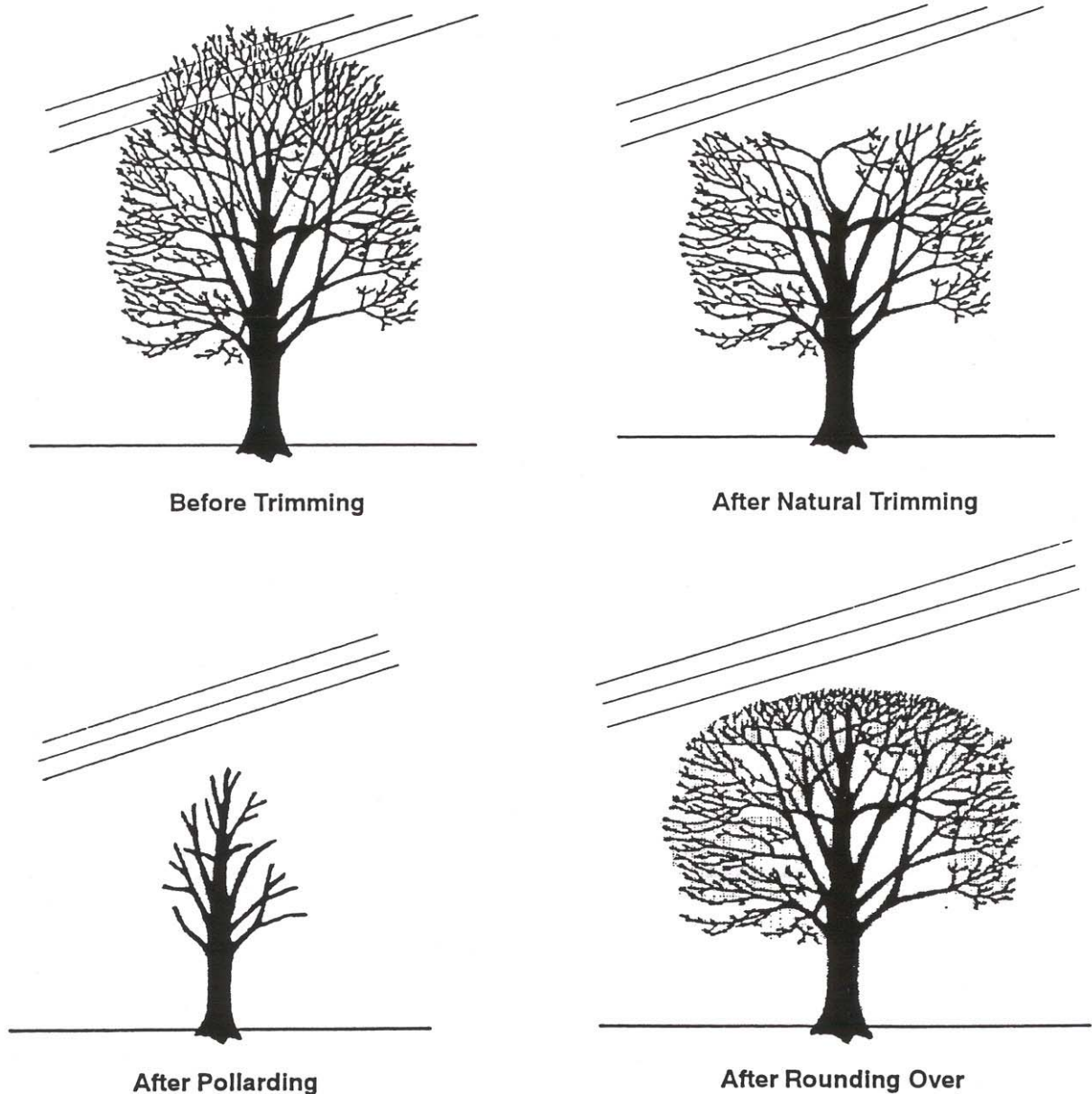


Figure 3. Basic Trimming Methods

**Stubbing off major limbs by pollarding is not a desirable pruning practice.**

The result is not only unsightly, but multitudes of fast-growing suckers sprout from the stubs and soon result in line clearance problems more serious than before. The stubs are also likely to fall victim to decay or disease. Finally, this method of pruning attracts unfavorable public attention.

**Shearing or Rounding Over** consists of making many small cuts so that the treetop is sheared in a uniform line. This results in rapid re-growth of many small sprouts, called suckers, directly toward the conductors. Because of this rapid re-growth of suckers, trees trimmed by the rounding over method need to be re-trimmed sooner than trees trimmed by the natural pruning period.

**Natural Pruning** is the method recommended by most professionals. Natural pruning is cutting branches flush at a suitable parent limb, back toward the center of the tree. This method of pruning is sometimes called “drop crutching” or “lateral pruning”. An attempt is made to remove large branches to laterals at least one-third the diameter of the branch being removed. All cuts should be flush to avoid leaving stubs. Natural pruning is especially adapted to the topping of large trees where a great deal of wood must be removed. In natural pruning, most cuts are made on larger limbs with a saw, and little pole prune work is required. The results are natural-looking trees, even if large amounts of wood have been removed. Natural pruning is also directional pruning, since it tends to guide the growth of the tree away from the wires (Figure 4). Stubbing, on the other hand, tends to promote rapid sucker growth right back into the conductors.

It should be emphasized that natural clearance is highly effective in reducing future costs, and that two or three natural pruning cycles will produce an ideal situation for both the utility and the tree owner. Most shade trees lend themselves easily to this type of pruning. Elm, Norway Maple, Red Oak, Red Maple, Sugar Maple, Silver Maple and European Linden, the most common street trees, react especially well to natural pruning methods.

**Crown Reduction** is cutting back portions of the upper crown of a tree. Reducing is indicated when a tree is located directly beneath a line. The main leader or leaders are cut back to a lateral, which should be at least one-third the diameter of the limb being removed. Most cuts should be made with a saw. A pole pruner is used only to cut lateral branches. To minimize re-growth, no more than one-fourth of the crown should be removed when topping (Figure 5).

**Side Pruning** is cutting back or removing side branches that threaten the conductors. Side pruning is required where trees are growing adjacent to utility lines. Limbs should be removed at a lateral branch. Notches in tree crowns should be avoided, if possible. Shortening branches above and below the indented area, or balancing the opposite side if the crown, will usually improve the appearance of the tree. When pruning, all dead branches over the wires must be removed, since this dead wood could easily break off and cause an interruption in service. (Figure 5)

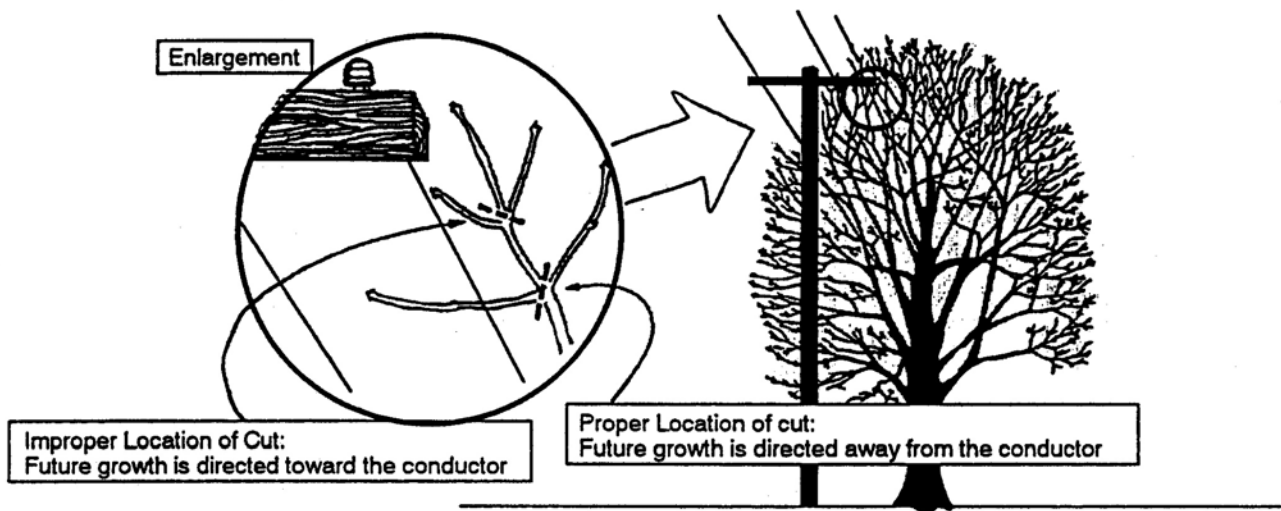


Figure 4. Natural Trimming (to direct growth away from wires)

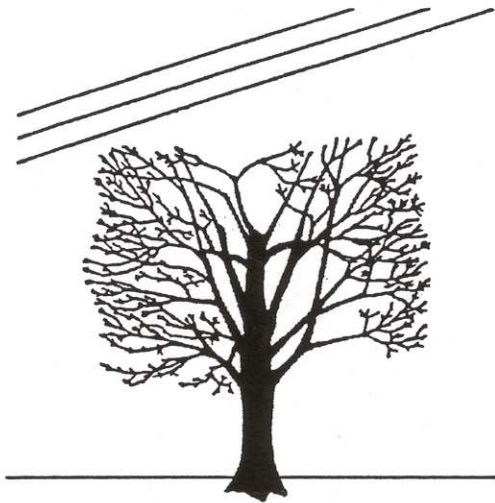
**Side Trimming** is cutting back or removing side branches that threaten the conductors. Side trimming is required where trees are growing adjacent to utility lines. Limbs should be removed at a lateral branch. Notches in tree crowns should be avoided, if possible. Shortening branches above and below the indented area, or balancing the opposite side of the crown, will usually improve the appearance of the tree. When trimming, all dead branches over the wires must be removed, since this dead wood could easily break off and cause an interruption in service (Figure 5).

**Overhang Or Under Pruning** consists of removing limbs beneath the tree crown to allow wires to pass below the tree crown. This type of pruning will allow the tree to retain its natural shape and continue its normal growth. Overhangs are hazards when lines pass beneath a tree and should be removed according to the species of the tree, location and the general policy of the utility. When pruning, all dead branches above the wires are removed, since this dead wood could easily break off and cause an interruption. Many utilities have a set removal program for trees that overhang important lines (Figure 5).

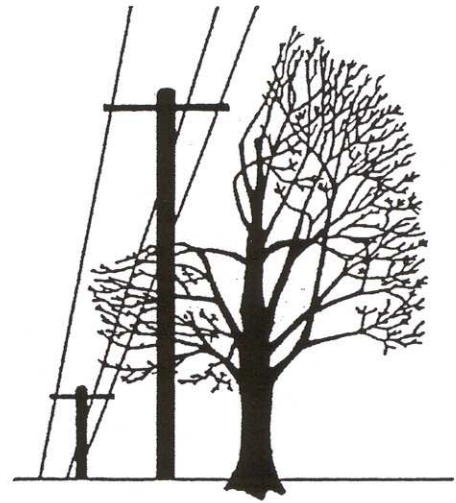
**Through Pruning** is the removal of branches within the crown to allow lines to pass through the tree. It is best suited for secondaries, streetlight circuits, and cables, although it is often used on primary circuits where there is no other way of pruning the tree. Cuts should be made at crotches to encourage growth away from the lines (Figure 5).

**Combinations** - It is often necessary to combine several types of pruning in order to maintain acceptable tree appearance and provide adequate clearances.

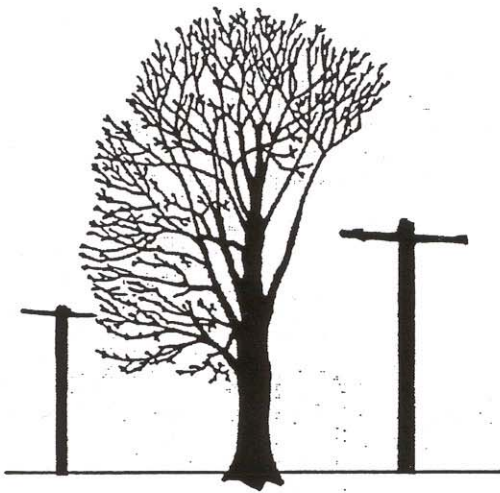
## METHODS OF TRIMMING (con't)



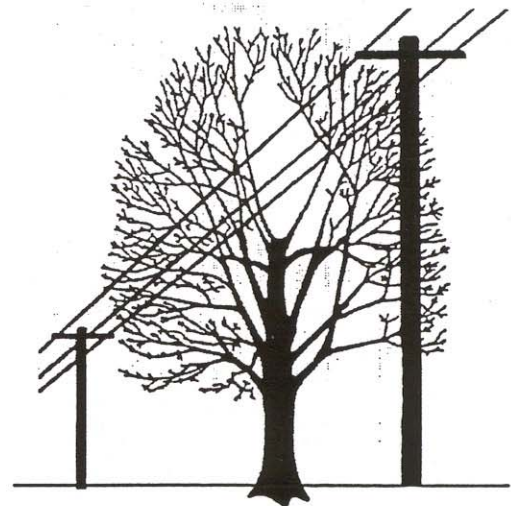
After Top Trimming



After Side Trimming



After Under Trimming



After Through Trimming

Figure 5. Four types of natural trimming.

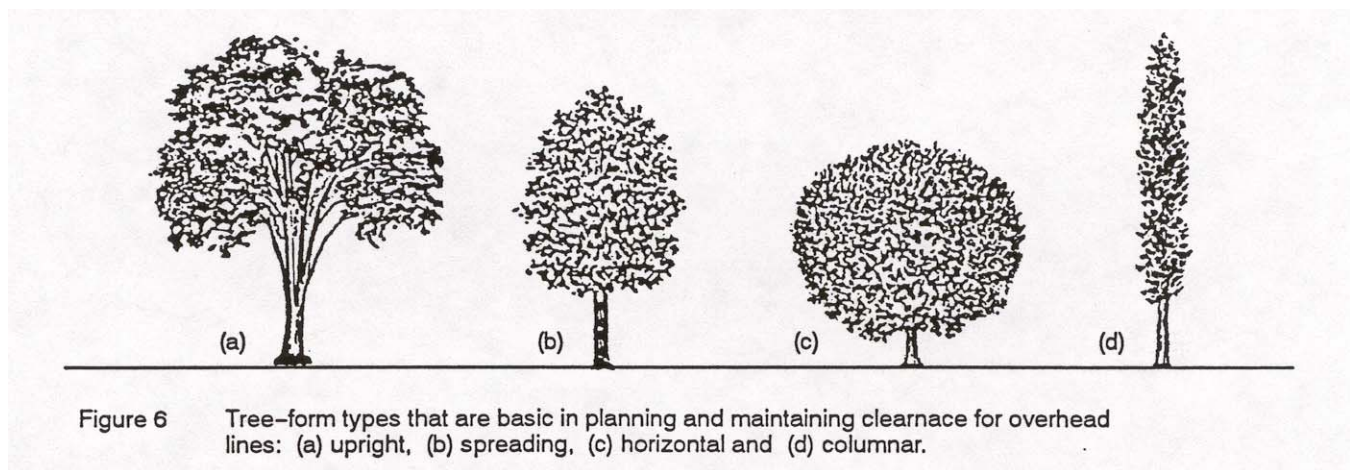
ANSI A300 “American Standard for Tree Care Operations – Tree, Shrub and Other Woody Plant Maintenance – Standard Practices”, presents performance standards for the care and maintenance of trees and should be considered a part of this appendix and adhered to in tree operations under this policy.



## **Techniques**

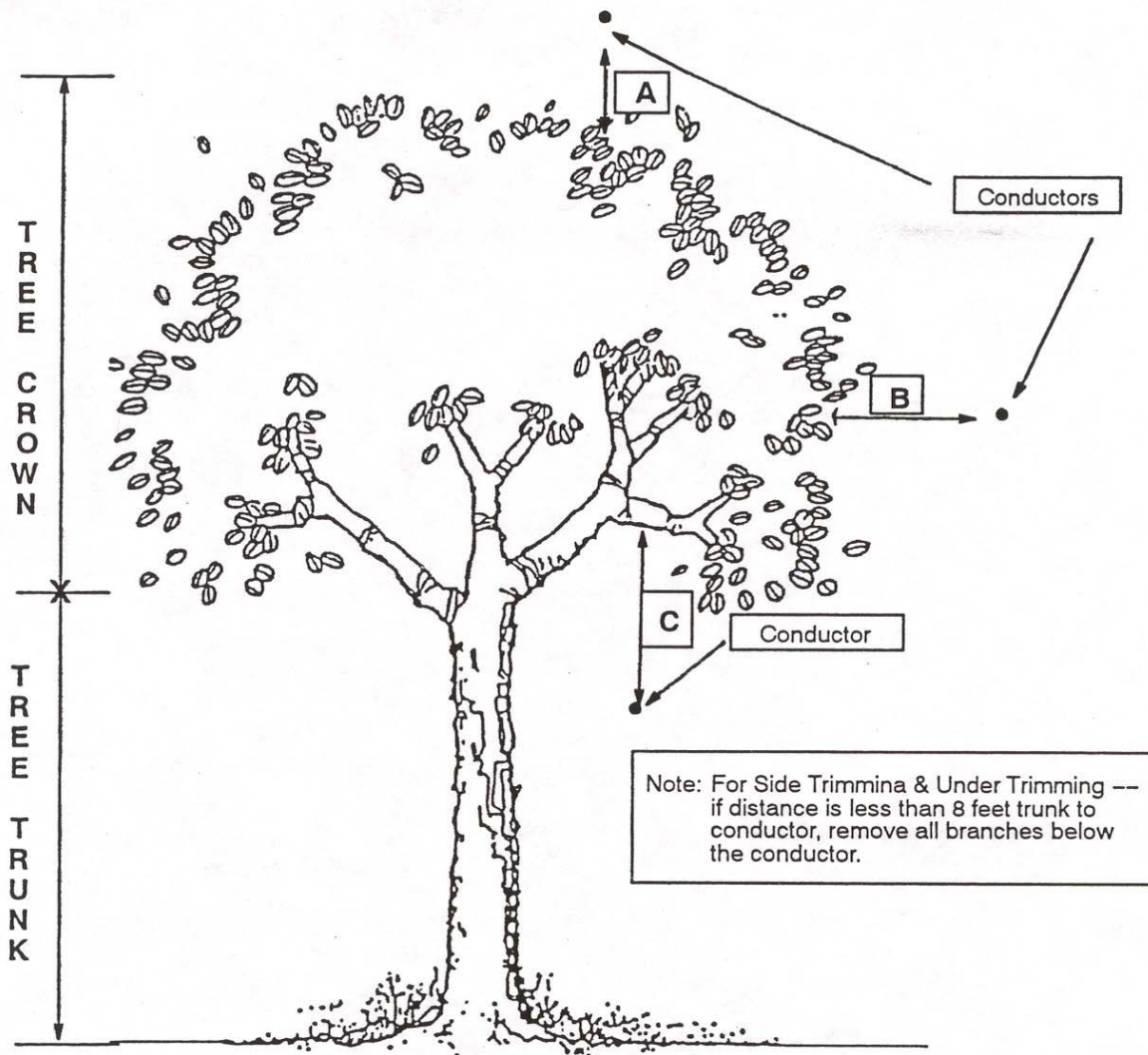
Proper clearance for any type of overhead line is measured not only in feet of clearance but in effectiveness. Both tree and overhead line characteristics must be known to get the maximum effective clearance for each tree. Clearance not only must be adequate when the tree is trimmed but must last. Therefore, each tree should be trimmed so it will need less work at the next trim cycle.

Before tree trimmers begin work, they plan how they are going to trim each tree. Consideration is given to how and when a tree is going to re-grow after it is trimmed. Trees can usually be placed into one of four tree-form types: upright, spreading, horizontal or columnar (Figure 6). If possible, the natural form of the tree should be maintained so that it does not look heavily trimmed.



All line clearance tree pruning should be done in accordance with the American National Standard Safety Requirements for Pruning, Repairing, Maintaining and Removing Trees, and for Cutting Brush” (ANSI Z133.1). The ANSI Z133 standard provides safety criteria for line clearance tree trimmers and the public. Minimum working distances from energized conductors are listed and must always be observed.

# EXHIBIT 1



Note: Our objective is to obtain trim clearances as indicated. However, extenuating circumstances may dictate that lesser clearances be accepted.

CLEARANCE	TYPE OF TRIMMING	MINIMUM CLEARANCE FOR 25 KV OR BELOW *
"A"	Topping	8 Feet
"B"	Side Trimming	8 Feet
"C"	Under Trimming (Remove overhang situations where possible)	12 Feet **

\* Services should be trimmed only to avoid contact.

\*\* Thin, lighten, or shorten limbs above this point on pines to prevent snow loading.

Secondary electric lines shall be cleared for a minimum clearance of three feet.



# **Commonwealth Electric Company**

## **Capital Expenditures**

Year Ending December 31, 2003



Appendix 8

# Commonwealth Electric Company

## 2003 ASQR Capital Spending

(Dollars in Thousands)

District	Town	Description	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>Distribution Customer Care:</b>												
	All Areas	Purchase and Install Customer Meters	\$ 1,067	\$ 1,124	\$ 825	\$ 1,143	\$ 919	\$ 1,129	\$ 968	\$ 391	\$ 922	\$ 1,402
<b>Distribution Electric Delivery:</b>												
Plymouth		16J1 Circuit Conversion	\$ -	\$ 111	\$ 551	\$ 236	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Plymouth		17J1 Circuit Reconductoring	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard		30/40/50 MVA Power Transformer Rep	-	-	-	-	-	-	-	-	-	-
		4Kv Switch Replacement	-	-	-	-	-	-	-	96	(25)	-
New Bedford	Dartmouth	524 From Fisher Rd to Dartmouth	-	-	-	-	-	-	-	-	-	-
		7500 kVa Mobile Substation	-	-	-	-	-	-	-	160	653	-
Plymouth		901 Circuit Reconductor-Brook	-	-	-	-	-	-	-	-	-	-
Plymouth		901-930 High Voltage Tie-RTE	363	(17)	-	-	-	-	-	-	-	-
Plymouth		924 Circuit Tie	-	-	-	-	158	166	-	-	-	-
Cape & Vineyard		93 Line Cable Replacements	-	-	-	-	-	-	-	-	-	-
Plymouth		930-4J1 Circuit Conversion	-	291	-	-	-	-	-	-	-	-
Plymouth		974 Circuit Step-down Banks	-	59	-	-	-	-	-	-	-	-
Cape & Vineyard		99 Cable Replacement	-	-	680	88	-	-	-	-	-	-
Cape/Vineyard	Yarmouth	Act of Public Authority - Buck Island Road Widening	-	-	-	-	-	-	-	2	-	-
Plymouth	Wareham	Act of Public Authority - Circuit 84 Water Crossing Rebuild	-	-	-	-	-	-	-	79	-	-
Cape/Vineyard	Falmouth	Act of Public Authority - Falmouth Beautification Project - Main St	-	-	-	-	-	-	-	3	-	-
Cape/Vineyard	Hyannis	Act of Public Authority - Hyannis Transportation Center	-	-	-	-	-	-	-	4	-	-
Cape & Vineyard	Yarmouth	Act of Public Authority Circuit 536 Buck Island	-	-	-	-	-	-	-	80	9	-
New Bedford	New Bedford	Act of Public Authority, Park St - New Bedford	-	-	-	-	-	-	74	84	-	-
		Acts of Public Authority	-	-	-	-	-	-	-	-	269	375
New Bedford	Acushnet	Acushnet to Cannon St Fiber	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard	Osterville	Bay Road, Osterville	-	-	-	-	-	-	236	-	-	-
		Bowdoin Street Correct Low Voltage	-	-	-	-	-	-	-	24	-	-
Cape & Vineyard		Build Alternate Feed For Vineyard	-	-	-	-	-	-	-	-	-	-
		Build New 115kv/25kv Bulk - Oak Street	-	-	-	-	-	-	-	-	-	441
New Bedford	New Bedford	Cannon Street Deactivation	4	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Cape Keep Cost	-	-	-	-	-	-	-	74	-	-
New Bedford		Circuit 542	-	-	-	-	-	-	-	-	-	-
New Bedford		Circuit 88 Reconductoring	-	132	-	-	-	-	-	-	-	-
Plymouth		Circuit 910, 931 and 14 Line	(14)	-	-	-	-	-	-	-	-	-
Cape & Vineyard	Yarmouth	Circuit 915 Conversion	-	-	-	-	-	-	-	98	21	-
Cape & Vineyard		Circuit 935 Overhead Conversion & Recond	24	-	-	-	-	-	-	-	-	-
Plymouth	Marshfield	CKT 970 Convert to Loop, Marshfield	-	-	-	-	-	-	-	-	454	18
	All Areas	Conservation Voltage Reduction	645	310	156	112	34	15	-	-	-	-
		Construct Phase 2 of the 122 Line Rebuild - Sandwich to Barnstable	-	-	-	-	-	-	4,192	(31)	113	-
New Bedford	New Bedford	Convert Acushnet Ave	-	-	-	-	-	-	-	21	69	43
Cape & Vineyard		Convert Circuit 940 - Chatham	-	-	-	-	-	-	-	-	-	144
Cape & Vineyard		Convert Circuit 941 - Chatham	-	-	-	-	-	-	-	-	-	426
Cape & Vineyard	Eastham	Convert Step-down area - Eastham	-	-	-	-	-	-	-	-	-	5
Cape & Vineyard	Cotuit	Cotuit Landing, Stop&Shop Plaza	-	-	-	-	-	-	-	-	10	39
Cape & Vineyard		Craigville Beach Rd-Pole Relocation	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Distribution Automation Cape & Vineyard	-	-	-	-	-	-	-	-	-	1,378
		Distribution Automation Computer Hardware South	-	-	-	-	-	-	-	-	-	379
New Bedford		Distribution Automation New Bedford	-	-	-	-	-	-	-	-	-	380
Plymouth		Distribution Automation Plymouth	-	-	-	-	-	-	-	-	-	946
Various	Plymouth	Double End Valley - Distribution Substation - Plymouth	-	-	-	-	-	-	-	4	-	-
Plymouth		Double-End Valley 115KV Substation	-	-	-	-	-	-	-	5	1,024	7
Cape & Vineyard	Falmouth	East Falmouth Conversion	153	368	37	-	-	-	-	-	-	-
		Engineering - Distribution	-	-	-	-	-	-	-	-	-	179
Various - South	New Bedford	Engineering Special - New Bedford Area - Various	-	-	-	-	-	-	-	12	168	190
Various	Plymouth	Engineering Special - Plymouth OSHA	-	-	-	-	-	-	-	12	6	-
		Engineering Special Station 518 Oak Street	-	-	-	-	-	-	-	15	-	-
Cape/Vineyard	Falmouth	Ext Ckt 845 Seacoast Shores, FAL	-	-	-	-	-	-	-	-	136	(14)
Cape/Vineyard	Wellfleet	Extend 25kV Circuit, Wellfleet	-	-	-	-	-	-	-	-	173	43
Cape & Vineyard	Falmouth	Falmouth 23KV Breaker for Vineyard	-	72	-	-	-	-	-	-	-	-
Cape & Vineyard	Falmouth	Falmouth Beautification	-	-	-	-	-	-	-	82	20	9
Cape & Vineyard	Falmouth	Falmouth to Oak Bluffs Substation Cable	898	3,114	-	-	-	-	-	-	-	-
New Bedford	Dartmouth	Faunce Corner Road Widening	-	-	-	-	-	-	-	-	-	-
New Bedford	New Bedford	First Street Overhead Rebuild	-	-	-	-	-	-	37	116	22	106

# Commonwealth Electric Company

## 2003 ASQR Capital Spending

(Dollars in Thousands)

District	Town	Description	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Plymouth	Wareham	Great Hill Mobile Home Park Underground	-	-	-	-	-	-	-	-	-	-
New Bedford		High Hill Upgrade	-	222	-	-	-	-	-	-	-	-
	All Areas	Hurricane Bob-Pole Line &Underground	-	-	-	-	-	-	-	-	-	-
	New Bedford	Improve - New Bedford	-	-	-	-	-	-	-	1	(95)	-
New Bedford	New Bedford	Improve - New Bedford	-	-	-	-	-	-	-	21	7	-
New Bedford	New Bedford	Improve - New Bedford	-	-	-	-	-	-	-	6	(18)	(7)
Plymouth	Plymouth	Improve - Plymouth	-	-	-	-	-	-	-	2	-	-
		Improve Circuit 656 Replace	-	-	-	-	-	-	-	178	78	7
Plymouth	Plymouth	Improve Industrial Park Circuit #14 Relocation	-	-	-	-	-	-	-	12	-	-
New Bedford	New Bedford	Improve New Bedford Area - Various	-	-	-	-	-	-	-	5	231	617
Cape/Vineyard	Osterville	Improvement - Reconductor Circuit 892 - Osterville	-	-	-	-	-	-	-	9	-	-
Cape & Vineyard	Falmouth	Install 115KV Breaker and Falmouth	108	-	-	-	-	-	-	-	-	-
Cape & Vineyard	Hatchville	Install 30/40/50 Transformer - Hatchville	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard	Falmouth	Install Conduit Falmouth Bulk	1,346	-	-	-	-	-	-	-	-	-
New Bedford	New Bedford	Keep Cost Overhead New Bedford Areas - Various	-	-	-	-	-	-	-	3	(117)	(13)
Plymouth	Plymouth	Keep Cost Overhead Plymouth - Various	-	-	-	-	-	-	-	3	-	9
Cape/Vineyard	Yarmouth	Keep Cost Overhead Yarmouth - Various	-	-	-	-	-	-	-	2	(25)	(48)
Cape & Vineyard	Falmouth	Land Purchase at Falmouth	92	2	-	-	-	-	-	-	-	-
Cape & Vineyard	Martha's Vineyard	Martha's Vineyard Distribution	660	(45)	-	-	-	-	-	-	-	-
All Areas	All Areas	Minor Projects	-	129	71	34	63	80	141	37	4	-
Cape/Vineyard	Cape & Vineyard	Minor Projects - Cape & Vineyard Areas - Various	-	-	-	-	-	-	-	14	1,912	2,978
New Bedford	New Bedford	Minor Projects - NB Areas	-	-	-	-	-	-	-	1	-	37
Plymouth	Plymouth	Minor Projects - Plymouth Areas	-	-	-	-	-	-	-	1	-	69
Plymouth	Plymouth	Minor Projects- Plymouth Various Areas	-	-	-	-	-	-	-	12	697	424
Plymouth	Plymouth	Minor Projects- Plymouth Various Areas	-	-	-	-	-	-	-	27	553	475
		Minor Substation Improvements	-	-	-	-	-	-	-	-	-	116
New Bedford	New Bedford	New Customer Connect New Bedford Waste Disposal	-	-	-	-	-	-	-	-	17	9
New Bedford		New Bedford Backyard System Upgrade	-	-	-	-	-	-	-	-	-	-
New Bedford		New Bedford Circuit 33 & 3	264	22	-	-	-	-	-	-	-	-
New Bedford		New Bedford City Overhead Rebuild	11	170	167	94	31	-	-	-	-	-
		New Bedford Cross Rd Station Replacement	-	-	-	-	-	-	-	-	-	27
New Bedford		New Bedford Health Services	-	-	-	-	-	-	-	-	-	-
New Bedford		New Bedford Industrial Park Double Circuit	-	-	-	-	-	-	-	15	85	110
New Bedford		New Bedford Keep Cost	-	-	-	-	-	-	-	130	-	-
New Bedford		New Bedford Overhead Circuit Upgrade	-	-	-	-	-	-	-	87	-	-
New Bedford		New Bedford Remote Control of Tie Line	147	143	-	-	-	-	-	-	-	-
New Bedford		New Bedford Secondary Network Upgrade	240	(3)	-	-	-	-	-	-	-	-
		New Bedford Submersibles	-	-	-	-	-	-	-	-	-	291
New Bedford		New Bedford Waste Water Treatment	601	-	-	-	-	-	-	-	-	-
Plymouth		New Customer	-	-	-	-	-	-	-	4	-	126
		New Customer Connections	-	-	-	-	-	-	-	-	1,038	1,242
New Bedford	New Bedford	New Customer - Underground Service - New Bedford	-	-	-	-	-	-	-	2	244	24
Cape & Vineyard	Falmouth	New Feeder At Falmouth Bulk	-	-	-	-	-	-	-	-	-	-
Cape/Vineyard	Cape & Vineyard	New Overhead and Underground Services - Cape & Vineyard	-	-	-	-	-	-	-	7	411	64
Plymouth	Plymouth	New Overhead Services - Plymouth Area - Various	-	-	-	-	-	-	-	5	223	53
New Bedford		New Service Titleist/Footjoy	-	-	-	-	-	-	-	-	-	-
		New tie 891 892 Eel River Rd 4kv	-	-	-	-	-	-	-	-	8	-
Plymouth		Newfield Low Voltage Sub Upgrade	128	-	-	-	-	-	-	-	-	-
		Oak Street Substation	-	-	-	-	-	-	-	-	828	1,763
Cape/Vineyard	Barnstable	Old Stage Rd, Barnstable	-	-	-	-	-	-	-	-	20	11
Cape & Vineyard	Orleans	Orleans Substation 2nd Transformer	-	-	219	1,069	1,695	26	-	-	-	-
	All Areas	OSHA	-	-	150	196	194	74	16	56	-	-
Cape & Vineyard		Overhead & Conv. Reconductor Circuit 9	-	-	-	-	-	-	-	-	-	-
		Overhead Circuit Upgrades	-	-	-	-	-	-	-	99	323	718
All Areas	All Areas	Overhead Distribution Equipment	8,230	8,906	8,183	9,505	8,189	8,890	6,492	5,959	-	-
Cape/Vineyard	Cape & Vineyard	Overhead Minor Projects - Cape & Vineyard Areas - Various	-	-	-	-	-	-	-	13	1,543	937
Cape/Vineyard	Yarmouth	Overhead Relay Enhancement - 915 Circuit Conversion	-	-	-	-	-	-	-	4	-	-
Cape/Vineyard	Hyannis	Overhead Relay Enhancement - Reconfigure 514 Circuit	-	-	-	-	-	-	-	3	2	-
New Bedford	Dartmouth	Overhead Service - Dartmouth - Bakerville Rd	-	-	-	-	-	-	-	1	(79)	-
All Areas	All Areas	Overhead Services	1,026	1,203	1,211	1,395	1,627	1,295	1,174	851	-	-
Cape/Vineyard	Cape & Vineyard	Overhead Work Order - Cape & Vineyard	-	-	-	-	-	-	-	93	-	-
New Bedford	New Bedford	Overhead Work Order - New Bedford	-	-	-	-	-	-	-	4	-	-
	Plymouth	Overhead Work Order - Plymouth	-	-	-	-	-	-	-	51	-	-
Plymouth	Plymouth	Pine Hills Development	-	-	-	-	-	-	(171)	(484)	(11)	13

**Commonwealth Electric Company**

**2003 ASQR Capital Spending**

**(Dollars in Thousands)**

District	Town	Description	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Plymouth	Plymouth	Plymouth Keep Cost	-	-	-	-	-	-	-	105	8	-
Plymouth		Plymouth Overhead Circuit Up	-	-	-	-	-	-	-	30	69	403
All Areas	All Areas	Private Pole Acquisition	-	15	114	114	70	39	5	(1)	-	-
All Areas	All Areas	Purchase and Install Transformers	2,515	2,490	2,372	2,222	3,326	3,648	2,983	2,756	1,460	2,618
		Rearrange ckt181/convert ckt401-402	-	-	-	-	-	-	-	-	149	371
New Bedford		Rebuild 102-8 to New Bedford Water Works	-	356	-	-	-	-	-	-	-	-
		Rebuild 88 Line Horse Pond	-	-	-	-	246	1	-	-	-	-
		Rebuild and Extend Circuit 124	-	-	-	-	-	-	-	-	364	-
Plymouth	Plymouth	Rebuild Circuit 14, Plymouth	-	-	-	-	-	-	-	428	(315)	93
New Bedford	Westport	Rebuild Circuit 523 Westport	-	-	-	-	-	-	-	112	32	-
		Rebuild Circuit 552	-	-	-	-	-	-	-	-	-	222
Plymouth	Wareham	Rebuild Circuit 84, Agawam	-	-	-	-	-	-	-	94	120	-
Plymouth		Rebuild the 127 Line	-	(38)	-	-	-	-	-	-	-	-
		Rebuild URD-Kings Landing	-	-	-	-	-	-	-	-	107	43
		Rebuild URD-Lynxholm Trust	-	-	-	-	-	-	-	-	145	20
		Rebuild New Seabury URD Phase 1	-	-	-	-	-	-	-	-	-	22
		Rebuild URD-Sea Pines	-	-	-	-	-	-	-	-	47	-
Cape & Vineyard	Waqoit	Rebuild Waquoit 23KV Tap	(8)	-	-	-	-	-	-	-	-	-
Plymouth	Wareham	Reconductor Circuit 12J1, Swifts Beach, Wareh	-	-	-	-	-	-	-	-	188	1
		Reconductor Circuit102 Chipawy/Slades ckt605	-	-	-	-	-	-	-	-	321	57
		Reconduct 14 Line to 795 MCM	-	-	-	-	-	-	-	-	-	385
		Reconduct 84 line to 795 MCM	-	-	-	-	-	-	-	-	-	610
Cape/Vineyard	Falmouth	Reconduct 98 line, Brick Kiln Falmouth	-	-	-	-	-	-	-	-	67	123
New Bedford		Reconduct Circuits 102-605	-	-	-	-	-	-	-	-	-	-
Plymouth		Reconductor 950 Circuit	-	-	-	-	-	-	-	-	-	-
Plymouth	Plymouth	Reconductor Circuit #968-Plymouth	231	(6)	-	-	-	-	-	-	-	-
New Bedford		Reconductor Circuit 532 Cross Rd	-	-	-	-	-	-	-	-	-	-
New Bedford	Freetown	Reconductor Circuit 604 Feed Relocation	-	-	-	-	-	-	287	28	-	-
Cape & Vineyard	Osterville	Reconductor Circuit 892, Osterville	-	-	-	-	-	-	-	259	-	-
		Reconductor 35J1 Circuit with 477 Aluminum	-	-	-	-	-	-	-	-	-	262
		Reconductor 31J1 Circuit out of Jones River Substation	-	-	-	-	-	-	-	-	-	39
Plymouth	Marshfield	Reconductor Circuit 42J2 Marshfield	-	-	-	-	-	-	-	-	242	13
Cape/Vineyard	Yarmouth	Reconductor Circuit 562, Yarmouth	-	-	-	-	-	-	-	-	4	277
Cape & Vineyard		Reconductor Commercial Street	308	503	-	-	-	-	-	-	-	-
Plymouth		Reconductor Pine St. and Union St.	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Reconductor State Road	-	-	-	-	-	-	-	-	-	-
		Reconductor/Convert Circuit 891 Osterville	-	-	-	-	-	-	-	-	-	162
		Reconductor/Rebuild Circuit 131	-	-	-	-	-	-	-	-	1	-
Cape & Vineyard	Brewster	Relieve Brewster Low Voltage Substation	-	-	-	-	-	-	-	-	-	2
Cape & Vineyard		Relieve Falmouth Low Voltage Substation	-	-	-	-	-	-	-	-	-	241
Plymouth		Relocate 17 Line (MBTA)	-	213	(214)	196	-	-	-	-	-	-
Plymouth	Plymouth	Replace DB Cable Pine Ridge Est, Plymouth	-	-	-	-	-	-	-	-	33	76
Plymouth	Plymouth	Replace DB Cable, Ballam Sites, Plymouth	-	-	-	-	-	-	-	-	105	119
Plymouth	Wareham	Replace DB Cable, Great Hill, Wareham	-	-	-	-	-	-	-	-	9	291
Plymouth	Plymouth	Replace DB Cable, Woodside Est, Plymouth	-	-	-	-	-	-	-	-	392	18
Cape & Vineyard		Replace KPF Type Switches - Cape	-	-	-	-	-	-	-	-	2	43
		Replace recloser/controls	-	-	-	-	-	-	-	-	75	23
Cape & Vineyard	Martha's Vineyard	Replace Martha's Vineyard Rental Diesels	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard	Martha's Vineyard	Replace Martha's Vineyard Cable	-	-	181	-	-	-	-	-	-	-
Cape & Vineyard		Residential Customer - Cape & Vineyard	-	-	-	-	-	-	-	19	47	24
New Bedford		Residential Customer - New Bedford	-	-	-	-	-	-	-	15	41	2
Plymouth		Residential Customer - Plymouth	-	-	-	-	-	-	-	5	21	-
Cape/Vineyard	Cape & Vineyard	Residential Development - Cape & Vineyard	-	-	-	-	-	-	-	1	391	3
Plymouth	Wareham	Residential Development - Wareham - Off Main St	-	-	-	-	-	-	-	1	271	-
Cape/Vineyard	Cape & Vineyard	Residential Development/Improvements Cape & Vineyard	-	-	-	-	-	-	-	2	54	-
New Bedford	Dartmouth	Residential Service - Dartmouth - Old Westport Rd	-	-	-	-	-	-	-	1	103	-
Cape/Vineyard	Yarmouth	Road widening, Yarmouth	-	-	-	-	-	-	-	-	94	22
		Route 44 Road Widening and Build-out Project	-	-	-	-	-	-	-	-	-	457
New Bedford		Seacoast Shore Conversion	69	(8)	201	-	-	-	-	-	-	-
Cape & Vineyard	Yarmouth	South Yarmouth 2	-	-	-	-	-	-	6	3	-	-
Cape & Vineyard	Yarmouth	South Yarmouth Conversion	-	-	11	-	-	-	-	-	-	-
		Split ckt63/convert ckt4/new ckt65	-	-	-	-	-	-	-	-	237	107
Plymouth	Marshfield	S-River St-Marshfield Reconductor	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Street Light Customer Operations - Cape & Vineyard	-	-	-	-	-	-	-	62	67	72

# Commonwealth Electric Company

## 2003 ASQR Capital Spending

(Dollars in Thousands)

District	Town	Description	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
New Bedford		Street Light Customer Operations - New Bedford	-	-	-	-	-	-	-	52	34	-
Plymouth		Street Light Customer Operations - Plymouth	-	-	-	-	-	-	-	27	47	-
All Areas	All Areas	Substation Preparation	-	-	-	-	-	-	42	-	-	-
		System Failures/Replacements	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard	Orleans	Transfer load from Orleans Dist	-	-	-	-	-	-	-	-	392	57
		Underground Distribution Equipment CIAC credit	-	-	-	-	-	-	-	-	(66)	-
All Areas	All Areas	Underground Distribution Equipment	3,157	3,104	2,411	3,019	3,374	2,766	1,805	1,173	-	-
Plymouth	Duxbury	Underground Residential Development Rebuild Cable Cure - Tanglewood/Highland	-	-	-	-	-	-	-	-	-	6
Cape & Vineyard		Underground Residential Development Rebuild Cotuit Commons	-	-	-	-	-	-	-	-	-	65
		Underground Residential Development Rebuild Cranberry Knoll	-	-	-	-	-	-	-	-	-	59
Cape & Vineyard	Cummaquid	Underground Residential Development Rebuild Cummaquid	-	-	-	-	-	-	-	120	-	-
		Underground Residential Development Rebuild David Estates	-	-	-	-	-	-	-	-	-	29
		Underground Residential Development Rebuild Kings Grant	-	-	-	-	-	-	-	-	-	144
Cape & Vineyard	New Seabury	Underground Residential Development Rebuild New Seabury Fiddler	-	-	-	-	-	-	-	-	529	27
		Underground Residential Development Rebuild Old Colony Estates	-	-	-	-	-	-	-	-	-	1
Cape & Vineyard		Underground Residential Development Rebuild Santuit Pond	-	-	-	-	-	-	-	221	13	-
		Underground Residential Development Rebuild Seven Hills Road	-	-	-	-	-	-	-	-	-	201
Cape & Vineyard		Underground Residential Development Reconstructor Artisan Way	7	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Underground Residential Development Reconstructor Bramblebush	53	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Underground Residential Development Reconstructor Cinderella Terrace	95	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Underground Residential Development Reconstructor Howes Hill	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Underground Residential Development Reconductoring New Seabury	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Underground Residential Development Reconductoring Tide Run	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Underground Residential Development Reconstructor-Sand/Cranberry	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Underground Residential Development Reconstructor-Sand/Dee	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Underground Residential Development Reconstructor-Sandwich/Country	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Underground Residential Development Reconstructor-Timberland Shore	110	-	-	-	-	-	-	-	-	-
All Areas	All Areas	Underground Services	391	323	337	395	417	378	-	-	-	-
Cape & Vineyard	Chatham	Upgrade Chatham Tap	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard	Hatchville	Upgrade Hatchville Transformer	-	-	-	-	-	-	-	-	-	-
All Areas	All Areas	Upgrade/Replace Substation Equipment	562	482	486	534	570	467	242	22	230	-
Cape & Vineyard		Upper Cape Water Supply	-	-	-	-	-	-	-	136	-	-
Plymouth		Valley Substation	-	-	-	-	-	-	-	-	-	-
Cape/Vineyard		Various Projects	-	-	-	-	-	-	-	3	-	-
Cape/Vineyard	Cape & Vineyard	Various Projects - Cape & Vineyard Areas	-	-	-	-	-	-	-	7	1,380	1,536
New Bedford	New Bedford	Various Projects - New Bedford Areas	-	-	-	-	-	-	-	26	313	307
New Bedford	New Bedford	Various Projects - New Bedford Areas	-	-	-	-	-	-	-	24	702	515
New Bedford	New Bedford	Various Projects - New Bedford Areas	-	-	-	-	-	-	-	7	1,447	2,122
		Voltage Conversion beyond step-downs- Shangrila section of 960 Circuit	-	-	-	-	-	-	-	-	-	354
		Voltage Conversion White Horse Beach Area - 940 Circuit	-	-	-	-	-	-	-	-	-	270
		West Harwich Substation	-	-	-	-	-	-	-	-	-	3
		Y2K Preparation of Substation	-	-	-	-	-	298	-	-	-	-
New Bedford		ZAPP USA	-	-	-	-	-	452	-	-	-	-
		Technical Support	-	-	-	-	-	-	324	3,475	3,930	5,200
		Construction Accounting Service	-	-	-	-	-	-	112	-	-	-
		<b>Total Distribution Electric Delivery</b>	<b>\$ 22,416</b>	<b>\$ 22,623</b>	<b>\$ 17,324</b>	<b>\$ 19,209</b>	<b>\$ 19,994</b>	<b>\$ 18,595</b>	<b>\$ 17,997</b>	<b>\$ 17,387</b>	<b>\$ 24,902</b>	<b>\$ 33,267</b>
		109 Line Switch Upgrade	\$ -	\$ -	\$ -	\$ 36	\$ 51	\$ -	\$ -	\$ -	\$ -	\$ -
		111/112 Line	-	-	-	-	-	-	174	-	-	-
New Bedford		112 Cable-Upgrade Gas Piping	-	-	-	-	-	-	-	-	-	-
New Bedford		112 Pipe Type Cable-Pothead	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard		115 Line Relaying	193	167	-	-	-	-	-	-	-	-
Cape & Vineyard		11572 Circuit Breaker Replacement	-	-	150	-	-	-	-	-	-	-
Plymouth	Carver	116 Line Carver to Brook Street	-	-	2,600	-	-	-	-	-	-	-
Cape & Vineyard		122 Line Rebuild	-	-	-	3,062	514	2	29	-	-	-
		122 Line Phase 2	-	-	-	-	-	-	-	-	-	115
		345Kv Breaker Replacement	-	-	-	-	-	-	-	2	666	1,225
Plymouth		7.3 Miles of 116 Line Semass	1,209	-	-	-	-	-	-	-	-	-
New Bedford	Acushnet	Acushnet Sub Station Upgrade	-	-	-	-	-	-	-	-	-	-
		Add two motor switches Line # 109	-	-	-	-	-	-	-	-	58	344
Cape & Vineyard	Barnstable	Barnstable 115KV Switch Station	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard	Barnstable	Barnstable Switch Relay Upgrade	-	-	-	105	-	-	-	-	-	-
Cape & Vineyard	Bourne	Bourne 12272 Breaker Replacement	-	-	-	-	262	-	-	-	-	-

# Commonwealth Electric Company

## 2003 ASQR Capital Spending

(Dollars in Thousands)

District	Town	Description	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Cape & Vineyard		Bourne-Barnstable Line 122 Reb	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Bourne -Barnstable Relaying and Breakers	-	-	-	-	-	-	-	-	-	103
		Build 115KV Line Acushnet/Pine St	-	-	-	-	-	-	262	-	-	-
		Buy and Install 115 Kv Breakers NB	-	-	-	-	-	-	-	-	130	-
Cape & Vineyard		Canal Auto Transformer	-	-	-	-	-	-	767	189	-	-
Cape & Vineyard		Canal Switchyard Separation	-	-	-	-	-	110	125	133	61	-
		Capital Repairs, Line 331, line, insulators, etc	-	-	-	-	-	-	-	-	-	56
		Com Electric Spare Breaker	-	-	-	-	264	-	-	-	-	-
Plymouth		Corrective Maintenance - Plymouth/Wareham	-	-	-	-	-	-	-	31	18	(328)
Cape & Vineyard	Falmouth	Falmouth 23KV Breaker	-	-	4	-	-	-	-	-	-	-
Cape & Vineyard	Falmouth	Falmouth Bulk Substation	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard	Falmouth	Falmouth Tap 115KV Circuit	803	188	-	-	-	-	-	-	-	-
Cape & Vineyard	Harwich	Harwich TAP Regulator Removal	-	-	-	-	-	-	-	-	-	-
Cape & Vineyard	Harwich	Harwich Tap-Harwich 115KV Line	-	-	-	-	-	-	-	-	-	-
New Bedford		High Hill Upgrade	-	-	234	34	6	(315)	-	-	-	-
Plymouth	Kingston	Install 115KV Breaker and Kingston	2	63	-	-	-	-	-	-	-	-
		MHD Relocation of 116/22 Line	-	-	-	-	-	-	-	-	-	29
	All Areas	Minor Projects	-	-	-	-	-	18	-	1	-	-
		New 115Kv Line from Canal to Bourne	-	-	-	-	-	-	-	-	-	206
New Bedford		New Bedford & Cape 115	-	-	-	-	-	-	2	-	-	3
New Bedford		New Bedford 115Kv Cable	-	-	-	-	-	-	1,671	4,647	(511)	(302)
New Bedford		New Bedford Cable Supply Relocate	-	-	-	-	913	1,398	-	-	-	-
New Bedford	New Bedford	New Bedford City Overhead Rebuild	-	-	-	-	-	-	-	1	-	-
New Bedford		New Bedford Cross Road-Station Replace	-	-	-	-	-	-	-	2	304	-
		Oak Street Station 518 Transmission	-	-	-	-	-	-	-	-	2	50
Cape & Vineyard	Orleans	Orleans 115Kv Breaker	-	-	-	-	128	-	-	-	-	-
Cape & Vineyard	Orleans	Orleans Sub Linework	-	-	-	260	-	-	-	-	-	-
Cape & Vineyard	Orleans	Orleans Sub to Harwich Tap	363	2,854	(6)	-	-	-	-	-	-	-
	All Areas	OSHA	-	-	-	-	-	-	101	-	-	-
Various - South	New Bedford	OSHA Upgrade	-	-	-	-	-	-	-	14	154	-
		P & I 400MVA Auto-Transformer @ Canal Yard	-	-	-	-	-	1,637	-	-	-	-
Cape & Vineyard	Bourne	Purchase 2 Breakers for Bourne	-	-	-	-	169	22	-	-	-	-
		Purchase Spare Breaker - Com Electric	-	-	-	-	-	-	-	-	-	137
Plymouth	Carver	Rebuild 116 Line/Carv Substation to Bourne	(101)	-	-	-	-	-	-	-	-	-
Cape & Vineyard		Rebuild Harwich to Orleans	-	-	-	-	-	-	-	-	-	-
		Replace 191 Structures & Station	-	-	-	-	-	559	49	821	27	5,052
		Replace structures Kingston to Whitman	-	-	-	-	-	-	1	-	-	-
		Replace Structures Line # 191	-	-	-	-	-	-	-	-	1,346	14
Cape & Vineyard	Sandwich	Sandwich Sub T-120-122 Breaker	-	-	-	-	90	-	-	-	-	-
		Station 211 - Install Shunt Reactor	-	-	-	-	-	-	-	1	-	-
Cape & Vineyard		Switch 115KV Capacitor	-	-	-	-	-	-	-	-	-	-
		Technical Support	-	-	-	-	-	-	-	232	-	-
Plymouth		Tremont - 11232 Circuit Breaker Replacement	-	-	55	85	-	-	-	-	-	-
		Upgrade Substations	-	-	-	-	-	-	80	110	22	-
Plymouth	Manomet	West Pond to Manomet Right of Way	-	-	-	-	-	-	-	-	-	-
		<b>Total Transmission</b>	<b>\$ 2,469</b>	<b>\$ 3,272</b>	<b>\$ 3,037</b>	<b>\$ 3,582</b>	<b>\$ 2,397</b>	<b>\$ 3,431</b>	<b>\$ 3,261</b>	<b>\$ 6,184</b>	<b>\$ 2,277</b>	<b>\$ 6,705</b>
<b>Capitalized Overheads:</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 5,308</b>	<b>\$ 5,764</b>	<b>\$ 5,676</b>	<b>\$ 5,765</b>
		<b>Total Capital Spending *</b>	<b>\$ 25,952</b>	<b>\$ 27,019</b>	<b>\$ 21,186</b>	<b>\$ 23,934</b>	<b>\$ 23,310</b>	<b>\$ 23,155</b>	<b>\$ 27,534</b>	<b>\$ 29,726</b>	<b>\$ 33,777</b>	<b>\$ 47,139</b>
<b>Note:</b>												
* Total Capital Spending for years 1994 through 1999 include both Direct Charges and Indirect Charges by project.												

# **Commonwealth Electric Company**

## **Spare Component Acquisition & Inventory Policy and Practice**

Year Ending December 31, 2003



Appendix 9

## **Commonwealth Electric Company Spare Parts Policy and Practices**

Commonwealth Electric Company (“Commonwealth” or the “Company”) monitors and manages critical items for its electric transmission system using a state-of-the-art computerized and integrated work management and inventory-control/procurement system. This system was installed in 1999-2000, and provides for identification of common items needed for Commonwealth, as well as the operating systems of all of the NSTAR Companies (i.e., Commonwealth, Boston Edison Company, Cambridge Electric Light Company, and NSTAR Gas Company) (together the “NSTAR Companies”). In addition, Commonwealth’s system inventories have been decentralized to bring materials closer to their point of use, decreasing spare-part requirements. Spare part requirements are periodically reviewed and updated by the Company to create efficiencies among and between the NSTAR Companies.

### ***I. Electric Distribution System Spare Parts***

The components of Commonwealth’s distribution system are, for the most part, lower-cost and high-use items. Inventory levels are based on predicted numbers of: (1) replacements due to failure; (2) replacements due to wear, tear and obsolescence; and (3) new construction needs. Higher-cost, less-frequent turnover items, such as pad-mount switches, transformers, tapping and stopping equipment and regulators, are inventoried based on the same requirements.

In recent years, The NSTAR Companies have formed alliances with vendors of high-use items such as gas parts, distribution transformers, cable and overhead hardware. These alliances have proven very effective in assuring a continuous flow of high-quality components at a controlled price, as well as giving the NSTAR Companies priority treatment for emergency deliveries to cover natural disasters, which have the potential to drastically impact the system. In 2003 NSTAR reevaluated their cable alliance, distribution transformer alliance and poleline hardware alliance securing service commitments and stable pricing for the next 2-3 years. Additional commodities are being evaluated in 2004.

### ***II. Electric Transmission and Distribution Substation & Gas Take Station Spare Parts***

Components at the substation level are much higher in cost, but much lower in number. The turnover of these components and the parts associated with them is also very low. Historically, there was a substantial inventory of substation spare parts, with very high carrying costs. Based on alternative methods for obtaining replacement parts, spare parts inventories were reviewed by Commonwealth, and as a result, substantially reduced.

Commonwealth has identified the following alternatives to maintaining a substantial inventory of spare parts:



- Establishing relationships with suppliers who maintain inventories of spare parts that can be obtained by Commonwealth on very short notice, as described above.
- Utilizing equipment on the Commonwealth system, which has been recently replaced or upgraded, for use as spare parts. Because of the large number of Commonwealth's ongoing projects, this option would provide a fairly continuous supply of spare parts.
- Maintaining relationships with utilities that utilize similar equipment.
- Employing the use of rebuilding kits.
- Promoting redundancy in design and parallel feeds throughout the Commonwealth system to reduce the need for major component inventories.

For large critical components, dedicated spares are kept and replaced as used by Commonwealth. Specifically, the Company maintains a mobile transformer and mobile substations that can be placed in service in a very short time for emergency replacement of a major component.

# **Commonwealth Electric Company**

## **Poor Performing Circuits**

Year Ending December 31, 2003



Appendix 10

## 2003 – Poor Performing Circuits

Commonwealth Electric Company					
Circuit ID	Location	Reason(s) for performance	Number of years performed poorly	Steps taken to improve performance	2003 SAIDI
3-24-912	Duxbury	Half of outages due to one lightning event that caused loss of supply, 1/3 of outages due to one event that occurred during an excludable snowstorm.	3	2003 - Reliability Program, three Automatic Sectionalizing Units added. Infrared inspections and repairs completed. Two conversion projects in the Harrison Ave & Powder Point Areas. 2002 – Circuit tree trimmed.	380.23
3-24-905	Duxbury, Marshfield	Majority of outages due to one lightning event that caused loss of supply.	2	2003 Reliability Program, two Automatic Sectionalizing Units added to supply line. Infrared inspections and repairs completed. Recloser added and circuit feed reconfigured. 2003 – Circuit tree trimmed.	326.39
3-21-35J1	Marshfield	Majority of outages due to one lightning event that caused loss of supply, but there was also a large vandalism event and a second loss of supply equipment.	2	2004 - Automatic Sectionalizing Units planned for supply line. 2003 - Rebuild and reconductoring of mainline completed. 2002 – Circuit tree trimmed.	548.43
4-77A-450	Falmouth	Vast majority of outages due to one recloser control problem that led to an extended outage.	3	2004 - Feed recloser and control upgraded in Jan 2004. 2003 Reliability Program, two Automatic Sectionalizing Units installed. Infrared inspections and repairs completed. 2003 – Circuit tree trimmed.	405.08
3-81-950	Carver	Almost all outages due to two events during snow storms in December (one was an excludable event)	2	2004 - Supply line to receive Automatic Sectionalizing Units. 2000 - Circuit tree trimmed.	443.82
2-605-605	Assonet	Half of outages due to one event during an excludable snow storm, remainder due to one large lightning storm, and one recloser setting error.	3	2003 Reliability Program, three Automatic Sectionalizing Units and four new recloser controls added. Infrared inspections and repairs completed. 2003/04 - Feed substation being rebuilt with all new equipment. 2003 – Circuit tree trimmed.	634.99

## 2003 – Poor Performing Circuits

Commonwealth Electric Company					
Circuit ID	Location	Reason(s) for performance	Number of years performed poorly	Steps taken to improve performance	2003 SAIDI
3-703-703	Rochester	Large majority of outages due one event caused by one excludable snowstorm.	3	2004 – Scheduled conversion of low voltage delta area of circuit to high voltage. 2003 Reliability Program, three Automatic Sectionalizing Units added. Infrared inspections and repairs completed. Converted low voltage delta area of circuit to high voltage. 2003 – Circuit tree trimmed.	692.06
4-86-840	Falmouth, Bourne	Almost all outages due to one loss of supply transformer during a summer heat event.	3	2004 Reliability Program, 2004 – Circuit tree trimmed (last trimmed in 2000).	343.37
3-26-904	Duxbury	Majority of outages due to one lightning event that caused loss of supply.	2	2003 Reliability Program, two Automatic Sectionalizing Units installed. Infrared inspections and repairs completed. 2002 – Circuit tree trimmed.	359.83
4-78-420	Falmouth	Almost all outages due to one event started by an equipment failure that led to a pole fire.	2	2004 - Recloser control to be upgraded. 2003 Reliability Program, two sectionalizing Automatic Sectionalizing Units installed. Infrared inspections and repairs completed. 2001 – Circuit tree trimmed.	342.70
3-15-914	Kingston	Majority of outages due to one event during an excludable snowstorm, followed by tree related causes.	2	2004 - Automatic Sectionalizing Units planned for supply line. 2003 – Circuit tree trimmed.	466.08
4-95A-940	Chatham	Two losses of supply line caused majority of outages, followed by tree related causes.	2	2004 - There will be another conversion done in of about 750 kVA. 2004 – Circuit tree trimmed. 2003 - Automatic Sectionalizing Units added to supply line, and supply was reconfigured. 50% of this circuit was rebuilt and converted to 25 kV in 2003.	366.42

## 2003 – Poor Performing Circuits

Commonwealth Electric Company					
Circuit ID	Location	Reason(s) for performance	Number of years performed poorly	Steps taken to improve performance	2003 SAIDI
4-95A-941	Chatham	Two losses of supply line cause majority of outages, followed caused by other and error.	2	2003 - Automatic Sectionalizing Units added to supply line, and supply was reconfigured. Circuit was also reconductored and a better tie established with 940. 2003 – Circuit tree trimmed.	187.61
4-97B-222	Chilmark, Tisbury, West Tisbury	Half of outages caused by loss of supply due to submarine cable faults, also a station equipment failure led to large loss of supply event.	2	2004-06 - Projects to upgrade supply lines planned. 2004 – Recloser and control to be replaced. 2003 – Circuit tree trimmed.	292.11
4-97B-220	Chilmark, Tisbury, West Tisbury	Outages due largely to two loss of supply events due to submarine cable faults, also a station equipment failure led to loss of supply event, also a caused by other event.	2	2004-06 - Projects to upgrade supply lines planned. 2003 – Circuit tree trimmed.	269.66

# **Commonwealth Electric Company**

## **Staffing Levels**

Year Ending December 31, 2003



Appendix 11

1997 THROUGH 2003

STAFFING - TRANSMISSION AND DISTRIBUTION OPERATIONS

	1997	1998	1999	2000	2001	2002	2003
Commonwealth Electric Company							
Union	477	487	489				
Management	250	216	184				
NSTAR Electric & Gas							
Union				2,264	2,272	2,324	2,232
Management				919	914	889	855

Note 1: From 1998 to 1999 and 1999 to 2000 the Company offered a voluntary separation program offered as part of the merger with Commonwealth Energy System. During the period from August 1999 through August 2000, 635 employees from the Boston Edison and Commonwealth Energy System elected to participate in this program and exited the merged company. This was a program that was negotiated with the union leadership. Under the program, approximately 300 union and 335 management employees terminated their employment.

Note 2: Certain impacts on staffing levels are the result of union consolidation.

Note 3: With the merger of BEC Energy and Commonwealth Energy System into NSTAR Electric and Gas and resulting consolidation of operations, employees are no longer categorized by or assigned to positions on the basis of the pre-merger operating company designations.

# **Commonwealth Electric Company**

**2004**

## **Performance Benchmarks**



Appendix 12



Commonwealth Electric Company  
2004  
Performance Benchmarks

<u>Year</u>	<u>Percent Calls Answered (1)</u>	<u>Percent Service Appt. Met</u>	<u>Percent On-Cycle Meter Reads</u>	<u>Lost Work Day Accidents</u>	<u>SAIDI (2)</u>	<u>SAIFI (2)</u>	<u>Consumer Division Cases</u>	<u>Billing Adjustments</u>
1992				2.17			1.501	124.81
1993				3.58			1.450	35.21
1994				3.84			1.240	27.25
1995				2.81			1.191	18.91
1996				3.24			1.019	14.78
1997	66.17%		96.90%	2.35	149.28	1.413	0.972	93.94
1998	64.26%		98.95%	1.43	98.91	0.985	1.050	37.87
1999	61.55%		99.08%	2.89	154.32	1.501	1.003	11.78
2000	71.16%		99.37%	2.49	147.23	1.510	0.792	0.11
2001	60.26%		98.99%	1.54	99.52	1.207	0.944	8.00
2002	80.24%	100.00%	99.38%					
2003	80.28%	98.26%	98.42%					
Mean	69.13%		98.73%	2.63	129.85	1.323	1.116	37.27
Std. Dev.	8.37%		0.87%	0.80	28.09	0.225	0.227	40.43
Max. Penalty	52.39%		96.99%	4.24	186.03	1.773	1.570	118.12
25% Penalty	60.76%		97.86%	3.44	157.94	1.548	1.343	77.69
25% Offset	77.50%		99.59%	1.83	101.76	1.098	0.889	-3.16
Max. Offset	85.87%		100.46%	1.03	73.68	0.873	0.663	-43.59

Notes (1) Based on 30 second threshold; includes calls abandoned after threshold;

(2) Exclusions based on events affecting 15% of Company.